

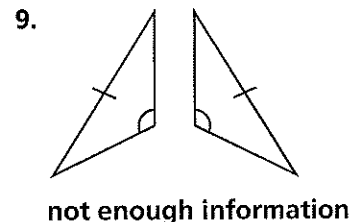
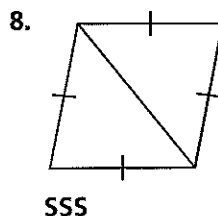
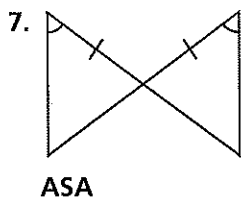
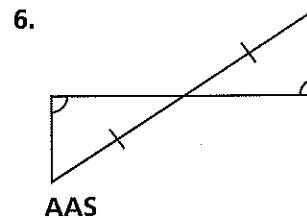
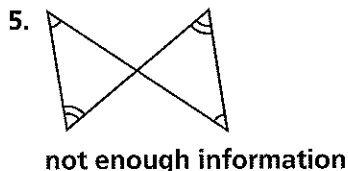
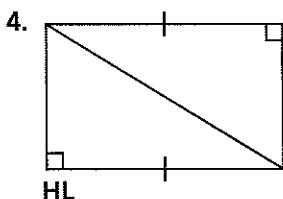
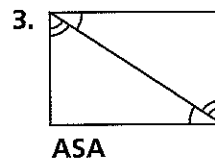
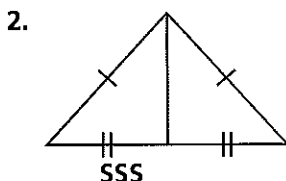
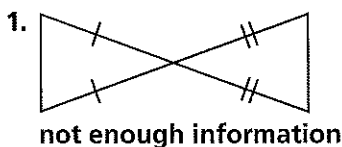
# Chapter 4

# Study guide Key

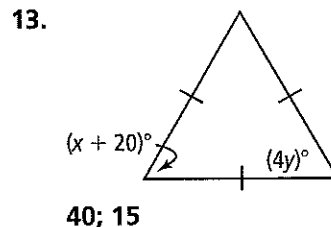
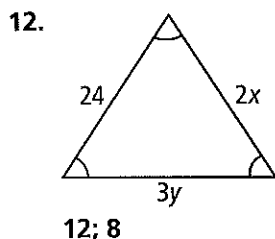
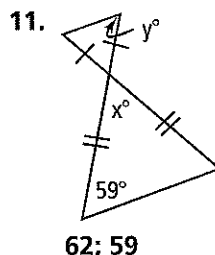
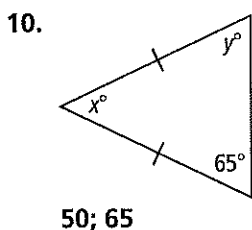
Form G

## Do you know HOW?

State the postulate or theorem you would use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write *not enough information*.



Find the value of  $x$  and  $y$ .

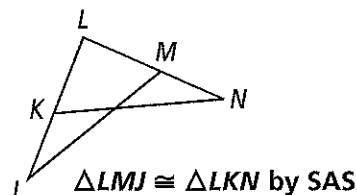
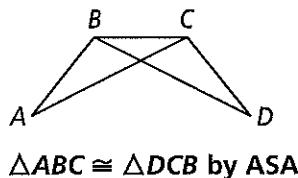


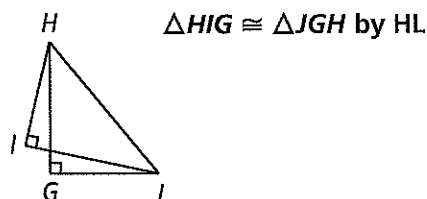
14.  $\triangle CGI \cong \triangle MPR$ . Name all of the pairs of corresponding congruent parts.  
 $\angle C \cong \angle M$ ;  $\angle G \cong \angle P$ ;  $\angle I \cong \angle R$ ;  $\overline{CG} \cong \overline{MP}$ ;  $\overline{GI} \cong \overline{PR}$ ;  $\overline{CI} \cong \overline{MR}$

# Chapter 4 Test (continued)

Form G

Name a pair of overlapping congruent triangles in each diagram. State whether the triangles are congruent by SSS, SAS, ASA, AAS, or HL.

15. Given:  $\overline{LM} \cong \overline{LK}$ ;  $\overline{LN} \cong \overline{LJ}$ 

16. Given:  $\angle ABC \cong \angle DCB$ ;  $\angle DBC \cong \angle ACB$ 

17. Given:  $\angle E \cong \angle D \cong \angle DCF \cong \angle EFC$ 

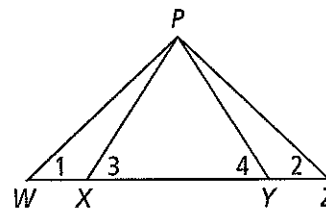
18. Given:  $\overline{HI} \cong \overline{JG}$ 


## Do you UNDERSTAND?

19. Reasoning Complete the following proof by providing the reason for each statement.

Given:  $\angle 1 \cong \angle 2$ ;  $\overline{WX} \cong \overline{ZY}$

Prove:  $\angle 3 \cong \angle 4$



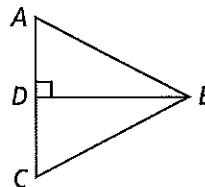
Statements	Reasons
1) $\angle 1 \cong \angle 2$ ; $\overline{WX} \cong \overline{ZY}$	1) ? Given
2) $\overline{WP} \cong \overline{ZP}$	2) ? Converse of Isosc. $\triangle$ Thm.
3) $\triangle WXP \cong \triangle ZYP$	3) ? SAS
4) $\overline{XP} \cong \overline{YP}$	4) ? CPCTC
5) $\angle 3 \cong \angle 4$	5) ? Isosceles Triangle Theorem

20. Reasoning Write a proof for the following:

Given:  $\overline{BD} \perp \overline{AC}$ , D is the midpoint of  $\overline{AC}$ .

Prove:  $\overline{BC} \cong \overline{BA}$

$\overline{BD} \perp \overline{AC}$ , D is the midpoint of  $\overline{AC}$  is given, so  $\angle BDC \cong \angle BDA$  because perpendicular lines form congruent angles. Also,  $\overline{AD} \cong \overline{CD}$  by definition of midpoint.  $\overline{BD} \cong \overline{BD}$  by the Reflexive Property of  $\cong$ . So,  $\triangle BAD \cong \triangle BCD$  by SAS and  $\overline{BC} \cong \overline{BA}$  by CPCTC.



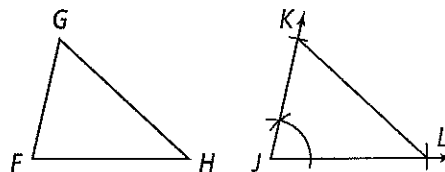
# Chapter 4 Test

Form K

## Do you know HOW?

- In  $\triangle HOT$  and  $\triangle SUN$ ,  $\angle O \cong \angle U$  and  $\angle T \cong \angle N$ .
  - What is the relationship between  $\angle S$  and  $\angle H$ ?  $\angle S \cong \angle H$
  - If  $m\angle O = 27$  and  $m\angle T = 63$ , what is  $m\angle S$ ? 90
- In  $\triangle PAD$ , the given angle is included between which two sides?
  - $\angle P$   $\overline{AP}$  and  $\overline{PD}$
  - $\angle D$   $\overline{AD}$  and  $\overline{DP}$

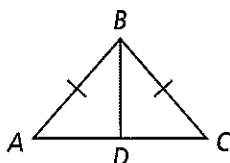
- Constructions** Construct  $\triangle JKL$  congruent to  $\triangle FGH$  using SAS.



- In  $\triangle XYZ$ ,  $\overline{YZ}$  is included between which two angles?  $\angle Y$  and  $\angle Z$

Determine what other information you need to prove the two triangles congruent. Then write the congruence statement and name the postulate or theorem you would use.

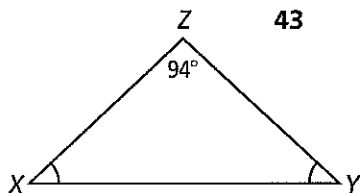
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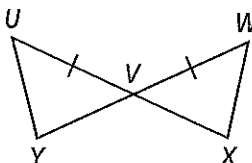
Answers may vary. Sample: need  $\overline{AD} \cong \overline{CD}$ ;  $\triangle ADB \cong \triangle CDB$ ; SSS

- State the postulate or theorem you can use to prove the pair of triangles congruent.  
AAS

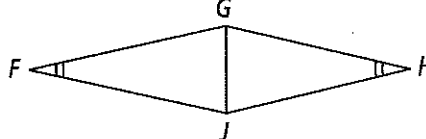
- What is  $m\angle X$ ?



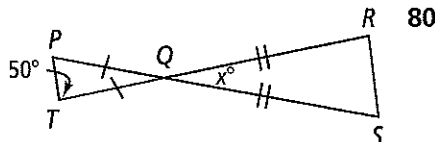
6.



Answers may vary. Sample: need  $\angle Y \cong \angle X$ ;  $\triangle UYV \cong \triangle WVX$ ; AAS



- What is the value of  $x$ ?

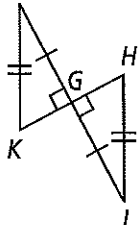


# Chapter 4 Test (continued)

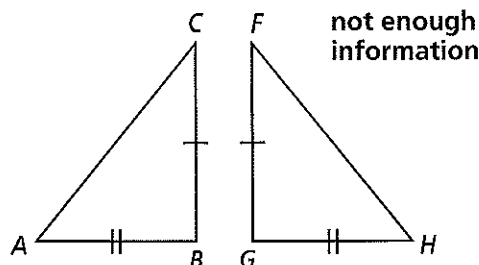
Form K

Write a congruence statement for each pair of triangles. If the triangles cannot be proven congruent, write *not enough information*.

10.  $\triangle FGK \cong \triangle JGH$

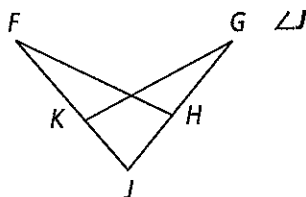


- 11.

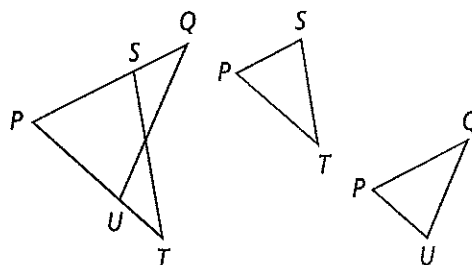


not enough information

12. Identify any common angles or sides for  $\triangle FKH$  and  $\triangle GKH$ .



13. Separate and redraw  $\triangle TPS$  and  $\triangle QPU$ .

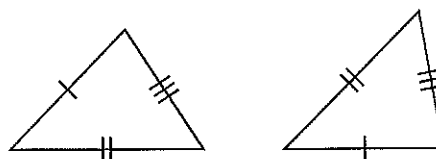


## Do you UNDERSTAND?

14. **Reasoning** The Third Angles Theorem can be applied to triangles that are not congruent. Explain.

Answers may vary. Sample: The sum of the measures of the angles of any triangle is 180.

15. **Error Analysis** Your classmate says the triangles at the right are not congruent by SSS. She explains that congruent sides do not correspond. Explain the error in her reasoning.



Answers may vary. Sample: The sides do correspond after flipping one of the triangles.

16. In the figure,  $\overline{AB} \cong \overline{DE}$  and C is the midpoint of both  $\overline{AD}$  and  $\overline{BE}$ .

- a. Prove  $\triangle ABC \cong \triangle DEC$ .

Answers may vary. Sample:  $AC \cong CD$  and  $BC \cong CE$  by def. of midpoint, so  $\triangle ABC \cong \triangle DEC$  by SSS.

- b. **Reasoning** Can you prove that  $\triangle ABC \cong \triangle DEC$  another way? Explain.

Answers may vary. Sample: Yes.  $AC \cong CD$  and  $BC \cong CE$  by def. of midpoint, and  $\angle ACB \cong \angle DCE$  by def. of vert. angles, so  $\triangle ABC \cong \triangle DEC$  by SAS.

